

**Missouri Department of Natural Resources
Water Protection Program**

**Total Maximum Daily Loads (TMDLs)
for
Chlordane and Polychlorinated Biphenyls
in the
Mississippi River**

**Completed: October 5, 2006
Approved: November 3, 2006**

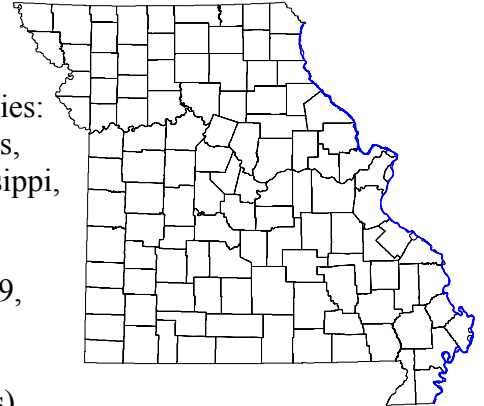
**Total Maximum Daily Loads (TMDLs)
For the Mississippi River
Pollutants: Chlordane and Polychlorinated Biphenyls (PCBs) in fish tissue**

Name: Mississippi River

Location: Upper and Lower Mississippi River, across 16 counties: Clark, Lewis, Marion, Ralls, Pike, Lincoln, St. Charles, St. Louis, Jefferson, Ste. Genevieve, Perry, Cape Girardeau, Scott, Mississippi, New Madrid and Pemiscot

Hydrologic Unit Code (HUC): 07110001, 07110004, 07110009, 07140101, 07140105, 08010100

Water Body # (WBID): 00001 (165 miles), 03152 (124.5 miles) and 01707 (200.5 miles)



Missouri Stream Classification: The Mississippi River is classified in the Missouri Water Quality Standards (WQS) as a Class P¹ stream.

Beneficial Uses for Mississippi River²:

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life and Human Health – Fish Consumption
- Whole Body Contact Recreation, Category A (WBID 00001 only) and Category B
- Secondary Contact Recreation
- Irrigation
- Drinking Water Supply
- Industrial

Pollutant: Chlordane and PCBs in fish tissue

Size of Impaired Segment: 490 miles

Pollutant Source: Many point and nonpoint sources

TMDL Priority Ranking: High

¹ Class P streams maintain permanent flow even in drought periods

² For Beneficial uses see 10 CSR 20-7.0310 (C) and Table (H)

1. Introduction

1.1 Study Area Description:

The Mississippi River is 2,320 mile long starting at Lake Itasca in Minnesota and ending at the Gulf of Mexico. The river is divided into the Upper Mississippi Basin from its source south to the Ohio River and the Lower Mississippi Basin from the Ohio River to its mouth approximately 100 miles downstream from New Orleans, Louisiana. There are a series of 27 locks and dams on the Upper Mississippi River, which are designed to maintain a 9-foot channel for commercial barge traffic. Below St. Louis, the Mississippi River is relatively free-flowing, although it is constrained by numerous levees and directed by numerous wing dams.

The TMDL discussed in this report is for the portion of the Mississippi River that begins at the confluence of the Des Moines and Mississippi Rivers on the border of Iowa, Illinois and Missouri near Alexandria, Missouri at River Mile 359.1 on the Upper Mississippi River (Figure 1). It ends at the Missouri and Arkansas state line. Table A in the Appendix provides a detailed description of 19 sampling locations along the Mississippi River in Figure 1. Land use for this 490-mile river segment is shown in Figure 2. Within the impaired segments, four major tributaries enter the Mississippi River. These tributaries are the Des Moines, Illinois, Missouri and Ohio rivers, and their confluences are at Upper Mississippi River Miles 361, 218, 197 and Lower Mississippi River Mile 955.8, respectively. Table 1 summarizes the information on the impaired segments in the Mississippi River based on 2002 303(d) listing.

Table 1: Missouri 2002 303(d) List for Impaired Segments of the Mississippi River

WBID	Waterbody	Size	Unit	Pollutant	Downstream County	Upstream County	Priority
1	Mississippi River	165	Miles	Chlordane, PCBs	St. Charles	Clark	High
3152	Mississippi River	124.5	Miles	Chlordane, PCBs	Pemiscot	Mississippi	High
1707	Mississippi River	200.5	Miles	Chlordane, PCBs	Mississippi	St. Louis	High

1.2 Fish Advisories in Missouri:

The Missouri Department of Conservation (MDC) has monitored levels of toxic contaminants in fish from Missouri lakes and rivers since 1984. At that time, MDC discovered elevated levels of chlordane in fish in the Missouri, Mississippi and Meramec rivers. MDC, the U.S. Environmental Protection Agency (EPA) and the department all provide fish tissue sample results to the Missouri Department of Health and Senior Services (DHSS) for use in determining health risks to fish consumers. DHSS, in turn, issues fish consumption advisories. DHSS has issued advisories based on pesticide contaminants in fish since 1985. Past DHSS fish advisories instructed anglers to limit consumption of fatty fish (carp, catfish, buffalo, drum, suckers and paddlefish) to one meal per week. This advisory was rescinded in 2001. Trout also have a high level of fat, but are considered safe to eat from anywhere in the state. In 2002, sturgeon eggs were added to the only existing PCB advisory, which has been in place for sturgeon meat from the Missouri River since 1997.

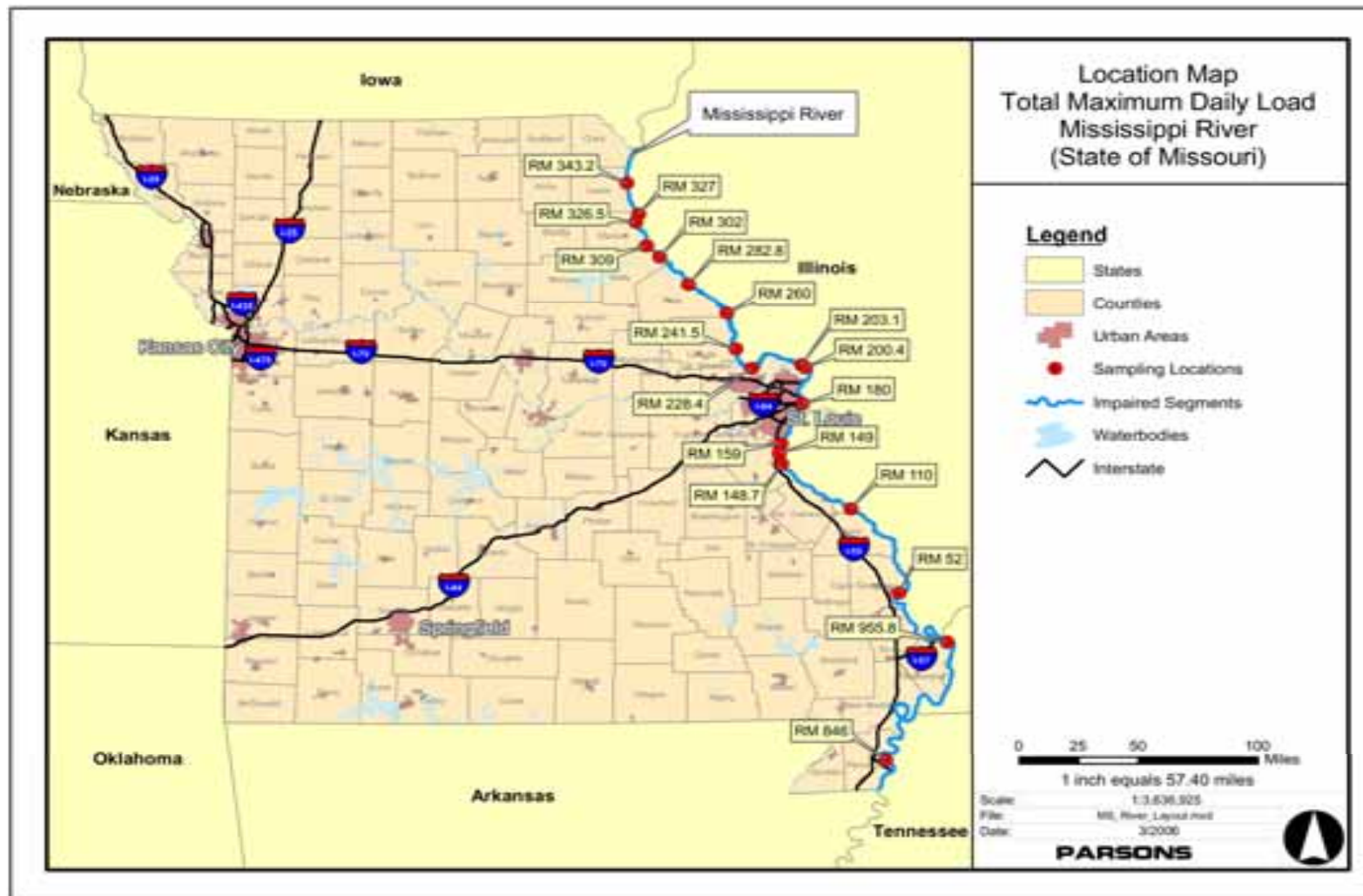


Figure 1: Location Map for Impaired Segments in Mississippi River

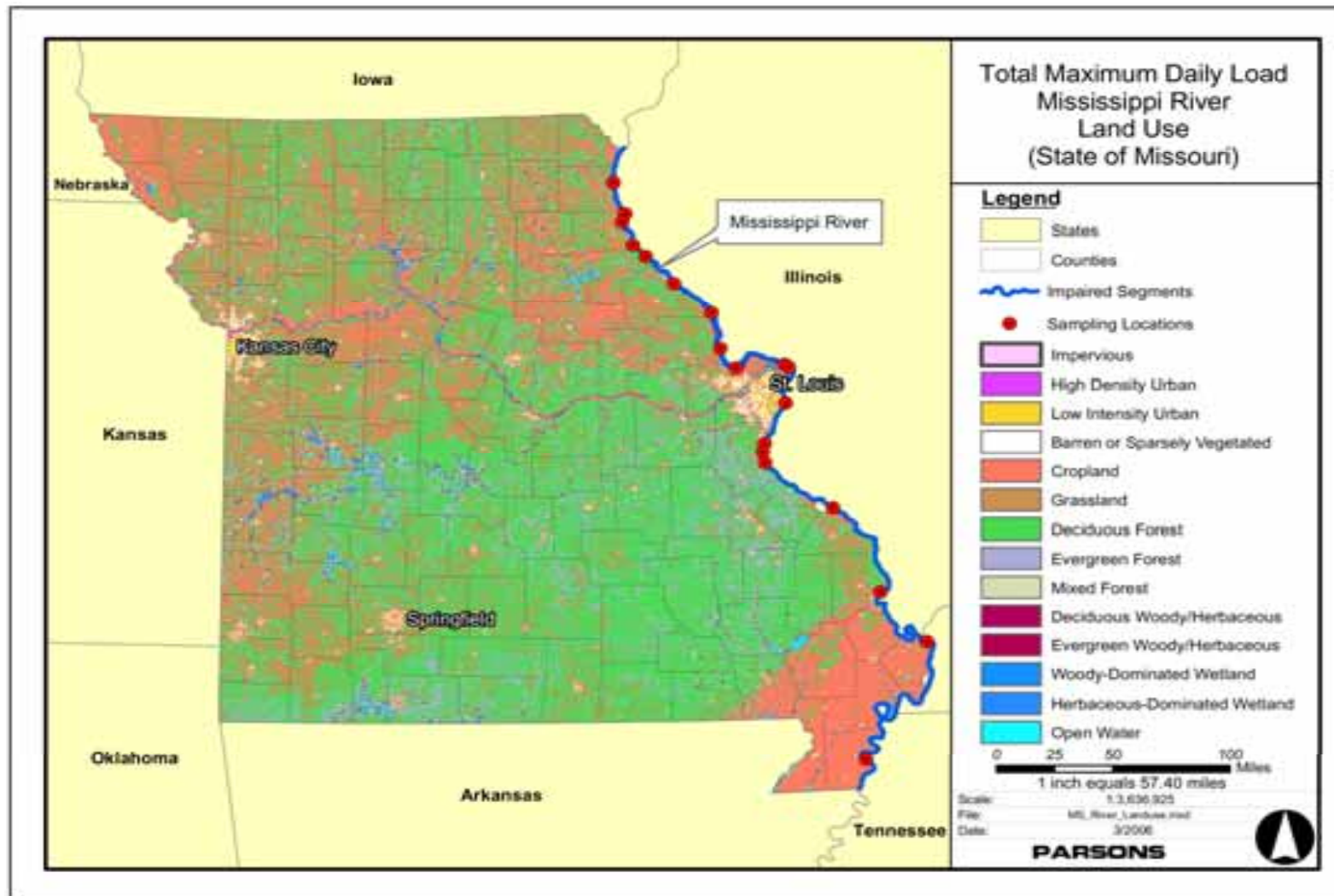


Figure 2: Land Use for Mississippi River Watershed within State of Missouri

DHSS issues its fish advisory every year around March or April. The advisory is made available to the public through press releases and may be accessed by calling DHSS at 1-866-628-9891. These advisories are also distributed to all Missouri county health departments and are posted on the Internet. The 2006 advisory may be found at www.dhss.mo.gov/NewsAndPublicNotices/06FishAdvisory.pdf.

2. Description of the Applicable Water Quality Standards

2.1 Beneficial or Designated Uses:

These uses are listed on page one. The use that is impaired is protection of warm water aquatic life and human health associated with fish consumption.

2.2 Anti-degradation Policy:

Missouri's WQS include EPA's "three-tiered" approach to anti-degradation and may be found at 10 CSR 20-7.031(2).

Tier 1 – Protects existing uses and provides the absolute floor of water quality for all waters of the United States. Existing instream water uses are those uses that were attained on or after Nov. 29, 1975, the date of EPA's first WQS regulation, or uses for which existing water quality is suitable unless prevented by physical problems such as substrate or flow.

Tier 2 – Protects the level of water quality necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water in waters that are currently of higher quality than required to support these uses. Before water quality in Tier 2 waters can be lowered, there must be an anti-degradation review consisting of: (1) a finding that it is necessary to accommodate important economical or social development in the area where the waters are located; (2) full satisfaction of all intergovernmental coordination and public participation provisions; and (3) assurance that the highest statutory and regulatory requirements for point sources and best management practices for nonpoint sources are achieved. Furthermore, water quality may not be lowered to less than the level necessary to fully protect the "fishable/swimmable" uses and other existing uses.

Tier 3 – Protects the quality of outstanding national resources, such as waters of national and state parks, wildlife refuges and water of exceptional recreational or ecological significance. There may be no new or increased discharges to these waters and no new or increased discharges to tributaries of these waters that would result in lower water quality (with the exception of some limited activities that result in temporary and short-term changes in water quality).

2.3 Specific Criteria:

2.3.1 Chlordane

The specific criteria for chlordane are found in Missouri's Water Quality Standards, 10 CSR 20-7.031, Table A, under Persistent, Bioaccumulative, Man-made Toxics. The limit for chlordane *in water* related to human health protection associated with fish consumption is 0.00048 micrograms per liter (µg/L or parts per billion). However, elevated chlordane levels in water are not the

problem. As chlordane tends to bioaccumulate in fish, this TMDL will be based on fish tissue chlordane levels. Fish tissue levels refer to the amount of chlordane in the fillet, or edible portion, of fish. The U.S. Food and Drug Administration (FDA) developed a fish tissue action level of 0.3 milligrams per kilogram (mg/kg or parts per million) for technical grade chlordane. Note: 1 kilogram equals approximately 2.2 pounds. However, the department and DHSS use the action level of 0.1 mg/kg sum-of-the-isomers of chlordane.³ If the level of a toxic contaminant exceeds this action level or the unrestricted consumption level, a fish consumption limit advisory that provides a risk-based, safe consumption level for target populations is issued regarding the potential health risk associated with long-term consumption of contaminated fish.

2.3.2 PCBs

The specific criteria for PCBs are found in Missouri's WQS, 10 CSR 20-7.031, Table A, under Persistent, Bioaccumulative, Man-made Toxics. The limit for PCBs *in water* related to human health protection associated with fish consumption is 0.000045 µg/L. The FDA set a 2.0 mg/kg limit on PCBs in fish tissue for interstate shipment of fish for human consumption. DHSS currently uses this number to issue fish advisories related to PCBs and the department uses the same number to judge impairment of Missouri water bodies by PCBs. However, DHSS has a revised fish advisory methodology that follows EPA guidance, so the threshold value for PCBs will change. The new threshold value for unrestricted consumption is expected to be 0.04 mg/kg of total PCBs in fish tissue. Following adoption of these new guidelines by DHSS, the next state 303(d) listing methodology document will acknowledge them and may be revised accordingly.

3. Current Water Quality Condition and Desired Endpoint

3.1 Current Water Quality Condition:

Several agencies collected fish tissue samples at numerous monitoring sites along the Mississippi River from 1975 to 2004. The goal of the fish tissue monitoring and survey program was to analyze fish tissue samples for chlordane and PCBs in order to define water body segments impacted by contamination. Bottom feeding fish such as carp were sampled because of their feeding or dwelling preferences near the bottom of the water column where chlordane and PCBs remain in the sediments.

Even though they have been banned, both chlordane and PCBs degrade very slowly, making them particularly persistent in the environment, where they remain in the soil for long periods of time. Because these pollutants are not soluble they are not readily found in the water column and are instead found in lakebed or streambed sediments where they adsorb to soil particles. Bottom-feeding fish, such as carp, become exposed to chlordane and PCBs due to their feeding and dwelling preferences near streambeds or lakebeds where contaminated sediments persist. Fish uptake these pollutants in water through their gills and through the food chain by consumption of contaminated aquatic organisms. Once the pollutants are absorbed into the bloodstream, they

³ Data can be collected as technical chlordane or sum-of-the-isomers of chlordane, in which case the action level is 0.1 mg/kg. Sum-of-the-isomers of chlordane is usually comparable to FDA's action level of 0.3 mg/kg technical grade chlordane when the contamination is recent, because there is a lot of the technical chlordane still present. However, after a few years the comparison no longer works well. The department, MDC, EPA and DHSS quantify chlordane by summing the following four chlordane isomers: cis-chlordane, trans-chlordane, cis-nonachlor and trans-nonachlor.

accumulate primarily in fatty tissues where they have the ability to biomagnify, or increase in concentration, as the compound is transferred through the food chain. These fish include fatty fish, such as carp, catfish, buffalo, drum, suckers and paddlefish.

3.2 TMDL Endpoint:

The department uses threshold levels of 0.1 mg/kg of chlordane (sum of isomers) and 2.0 mg/kg of total PCBs in fish tissue to determine support of the designated use. As just stated, because DHSS has a revised fish advisory methodology that follows EPA guidance, the threshold value for PCBs will change. The new threshold value for unrestricted consumption will be 0.04 mg/kg of total PCBs in fish tissue. If the average levels of these compounds exceed these levels in fillets of the fish sampled, the water body is considered to be not supporting the fish consumption use. These will be used for the endpoints for these TMDLs and the achievement of these targets should lead to the removal of fish consumption advisories. Missouri's protocol for removing or down grading an advisory requires at least two years of data below these targets.

4. Source Inventory and Assessment

4.1 Chlordane:

Chlordane has been identified as a pollutant of concern because it is a bio-accumulative pesticide that is carcinogenic and can cause both acute and chronic toxic effects. Its polycyclic chlorinated organic structure produces deleterious biological effects similar to those of DDT, PCBs, and other related substances (MDE, 2000).

Chlordane is a manufactured chemical that was used as a pesticide in the U.S. from 1948 to 1988 (ATSDR, 1995). Since its introduction in the 1940s, chlordane had been used as a broad-spectrum pesticide for agricultural, home and commercial control of insects until it was withdrawn from the market in 1988. The original source of chlordane was runoff, particularly from urban areas where widespread termite eradication occurred around homes in the 1970s and 1980s. Chlordane was also used at nurseries, on golf courses and in agriculture. Chlordane was banned for agricultural use in 1975 and for all uses in 1988; therefore, no additional loading should occur. Some of its trade names include Oktachlor and Velsicol 1068 (ATSDR, 1995). At the height of production, chlordane was the second most widely used organochlorine insecticide in the U.S., with annual production of about 11 million kg/year. Production in the U.S. in 1974 amounted to 9.5 million kg (IPCS, 1988). Over 70,000 tons of chlordane has been manufactured since 1946 (U.S. EPA, 1998).

As previously mentioned, chlordane degrades very slowly, and thus is extremely persistent in the environment (with the ability to stay in the soil for over 20 years). It bio-accumulates in the tissue of bottom-feeding fish (such as carp) which become exposed to chlordane due to their feeding or dwelling preferences near chlordane-contaminated sediments. Eating fish contaminated by chlordane will not make a person immediately ill. However, over a long period of time, chlordane may damage the nervous system, digestive system and the liver (MDNR, 2001).

The department recognizes that there is still chlordane in products in storage sheds, barns and basements. It is possible that chlordane could still find its way into the environment through leaks, use of the product or improper disposal. However, it is estimated that the amount that might

actually reach the river is negligible.⁴ The reasons for this are: 1) since it has been banned since 1988, the number of people who still have a product containing chlordane is small, 2) chlordane would be only a small portion of the ingredients in the product, 3) The number of people who would use the product is smaller yet and 4) if applied according to directions, it should not cause a problem. Overall, there is no reason to expect that the levels of chlordane in the environment, and therefore chlordane levels in fish tissue, will do anything but decline in the future.

4.2 Polychlorinated Biphenyls (PCBs):

PCBs are a mixture of up to 200 different chlorinated compounds and are stable under conditions of high pressure and high temperature. PCBs are manmade compounds that have been used commercially since 1929. These chemicals were manufactured as combinations of chlorinated biphenyls that differed according to the percentage of chlorine in the mixture. PCBs had a wide variety of industrial applications due to their chemical stability and flame resistance. However, these characteristics also enabled them to remain highly persistent in the environment. PCBs were commonly used as plasticizers, heat-transfer fluids, solvent extenders, hydraulic fluids, flame retardants, sealers, ink carriers, organic diluents and dielectric fluids. They are found in transformers, capacitors, florescent lighting fixtures, televisions, computers, microscope oil, hydraulic oil, caulking compounds and elastic sealant made from 1966 to 1975. The manufacturing of PCBs stopped in the United States in 1977 due to concerns about the persistence of PCBs in the environment and evidence that they bioaccumulate, which can cause harmful health effects.

U.S. industry purchased approximately 1.25 billion pounds of PCBs by the time production stopped in 1977 (U.S. EPA, 1993). EPA estimates that 60 percent, or 750 million pounds, of PCBs produced are still in use in the U.S. in approximately 150,000 PCB transformers and 2.5 million mineral oil transformers (Graham, 1987). Another 36 percent (450 million pounds) of PCBs were either placed in landfills or dumps or were available to biota via air, water, soil and sediments. The remaining four percent (55 million pounds) were destroyed by incineration or were degraded in the environment (U.S. EPA, 1993). Monsanto Chemical Company in Sauget, Illinois, produced approximately 99 percent of commercial PCBs for U.S. industry and sold the compounds under the trade name Aroclor (ATSDR, 1995a). A four digit numbering code identifies the Aroclors. The first two digits denote the number of carbon atoms in the biphenyl group and the last two digits represent the approximate percentage of chlorine in the mixture. The most common PCBs manufactured include Aroclor 1242, Aroclor 1248, Aroclor 1254 and Aroclor 1260 (Cairns et. al., 1986).

The behavior of PCBs differs depending on the number of chlorine atoms present. Generally, these compounds are relatively insoluble and have the ability to absorb strongly into organic matter. As the chlorine content increases, the solubility of the compounds decrease and the mixture becomes more viscous. PCBs are highly lipophilic (fat loving) and bio-accumulate in fish tissue, which can result in very high concentrations that are unsafe for human consumption (U.S. EPA, 1980). Currently, the primary source of PCB ingestion is through the consumption of contaminated fish (USDHHS, 1995). Fish uptake of PCBs in water through their gills and through the consumption of contaminated aquatic organisms. As with Chlordane, PCBs are absorbed into the bloodstream, and accumulate primarily in fatty tissues. In these fatty tissues, they have the ability to biomagnify, or

⁴ Personnel correspondence with Paul Andre, Missouri Department of Agriculture, Pesticide Program, 7/06.

increase in concentration, as the compound is transferred through the food chain. In humans and other mammals, PCBs accumulate in the gastrointestinal tract, adipose (fatty) tissue and skin.

Specifically in the Mississippi River Basin, PCBs are found in the greatest concentrations in the pools farthest upstream. The Upper Mississippi River is confined by control structures that form pools, which trap sediments and their absorbed contaminants. Twenty-nine locks and dams control the depth and flow of the river between Minneapolis and St. Louis. The fineness of the sediments is an important attribute in the retention of contaminants, the finer the sediment the greater total surface area there is for contaminants to be absorbed onto it. The most concentrated accumulation of the finest sediments in the pools of the Upper Mississippi River is in Lake Pepin bordering Minnesota and Wisconsin. Lower concentrations in the pools farther down river suggest the primary sources of PCBs in the Upper Mississippi River were localized in and near the Minneapolis-St. Paul metro area; and Lake Pepin has trapped and retained the majority of the PCBs, thereby slowing their transport further downstream (Meade and Leenheer, 1995).

PCB concentrations in the middle and lower reaches of the Mississippi River are less related to specific sources. One reason for this is the sources of PCBs have been more diverse and widely scattered. In the years following the banning of PCBs, the repeated deposition and re-suspension of contaminated sediments since, has resulted in a homogenization of PCB concentrations throughout the length of the river, and a subsequent blurring of significant distribution changes which would have indicated specific sources (Rostad et al., 1995).

As already stated U.S. production of PCBs ended in 1977 because of the evidence that they accumulate in the environment, which can cause harmful health effects. Although production of PCBs was banned, note that the ban was on the manufacture, processing, and distribution in commerce of PCBs. The ban did not extend to existing products containing PCBs, such as transformers. Poorly maintained hazardous waste sites that contain PCBs, industrial and municipal incinerators burning organic waste, illegal or improper dumping of PCB wastes (such as transformer fluids and some capacitors) and leaks from electrical transformers continue to release PCBs into the environment. However, since PCBs are no longer produced, a downward trend in the environment is inevitable.

5. Determination of TMDL and Allocation⁵

The following equation was used to calculate the TMDL.

$$\text{TMDL} = \text{WLA} + \text{LA} + \text{MOS} \quad (\text{Eq. 1})$$

where:

TMDL: Total Maximum Daily Load

WLA: Waste Load Allocation (for point sources)

LA: Load Allocation (for non-point sources)

MOS: Margin of Safety (to account for uncertainties)

5.1 TMDL/Loading Capacity:

TMDL or loading capacity is defined as the maximum pollutant load that a water body can assimilate and still attain WQS. EPA banned the use of chlordane in 1988 While the department

⁵ Calculations and graphs by Parsons Corporation, a Pasadena-based engineering and construction firm

recognizes that there is still chlordane in existence that is unaccounted for, with the potential to enter the river system, the amount that might actually reach the river is believed to be negligible (see section 4.1). Again, there is no reason to expect that the levels of chlordane in the environment and in fish tissue will do anything but decline in the future. Therefore, the TMDL for chlordane in the 490 mile impaired segment along the Mississippi River is set as zero pounds/day.

Similarly, EPA banned the use of PCBs in 1977. Again, the department acknowledges that there is the potential for a certain amount of PCBs to leak into the environment (see Source Inventory-PCBs above). However, judging from the available data, that amount is deemed to be small and declining. Therefore, the TMDL for PCBs in the 490 mile impaired segment along the Mississippi River is set as zero pounds/day.

5.2 Waste Load Allocation:

As stated earlier, these two compounds are mainly a sediment issue and amounts in the water column are virtually non-detectable. There are no Missouri facilities which discharge either directly to the Mississippi River or to a tributary where the Mississippi River is the first classified water body, that have that potential for discharging detectable amounts of PCBs or chlordane. Since chlordane and PCBs were banned in 1988 and 1977, respectively, there should be negligible discharge of chlordane and PCBs into streams from wastewater treatment plants and other point sources. Therefore, the WLA is set as zero pounds/day in this TMDL.

5.3 Load Allocation:

Since chlordane and PCBs were banned, there will be only minor and/or infrequent application of chlordane anywhere that might be discharged under runoff conditions and enter the river. As time passes, this, too, will decline. Therefore, the LA is set as zero pounds/day in this TMDL.

5.4 Margin of Safety:

In order to ensure there is no threat of chlordane and PCB levels impairing fish consumption, fish advisories will remain in effect until all samples taken from fish have met the desired endpoint for two years. The department will coordinate with DHSS in guarding against threats to human health associated with fish consumption from these two contaminants.

5.5 Seasonal Variation:

There is no seasonal variation associated with this TMDL.

6. Implementation

Since chlordane and PCBs have been banned, there is no specific remediation plan for this impairment. In regard to existing stores, stashes and unused inventory of these products, Missouri continues to collect them as they are turned in for proper disposal through various hazardous waste and hazardous household waste disposal initiatives. A major source of PCBs is transformers. Transformer fluid is tested and properly disposed of as the transformer ends its useful life. Otherwise, fish tissue concentrations are declining as chlordane and PCBs are purged or degraded in water body sediments over time. Figures 3 and 4 show the average annual chlordane and PCB concentrations and their corresponding moving average trends.

Figure 3: Average Annual Chlordane Concentration (as Sum-of-the-Isomers) and Three-Year Moving Average in Mississippi River over Time

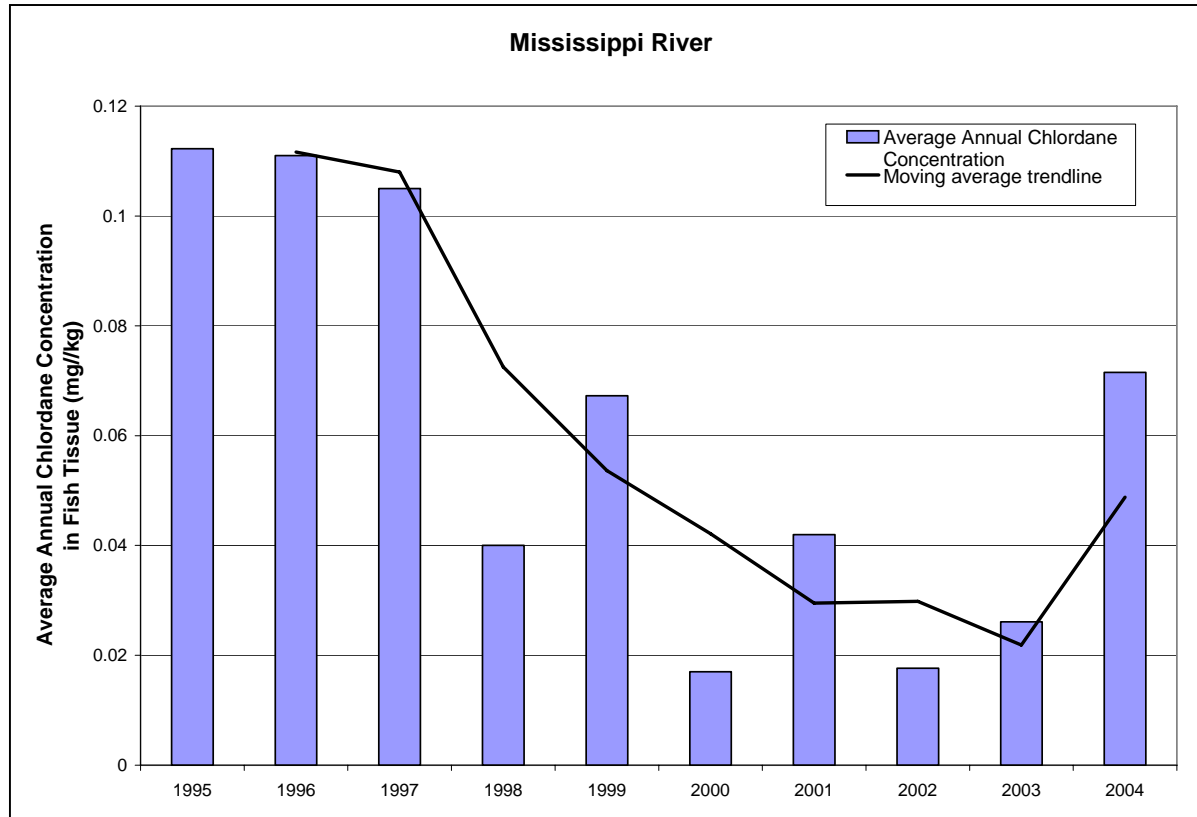
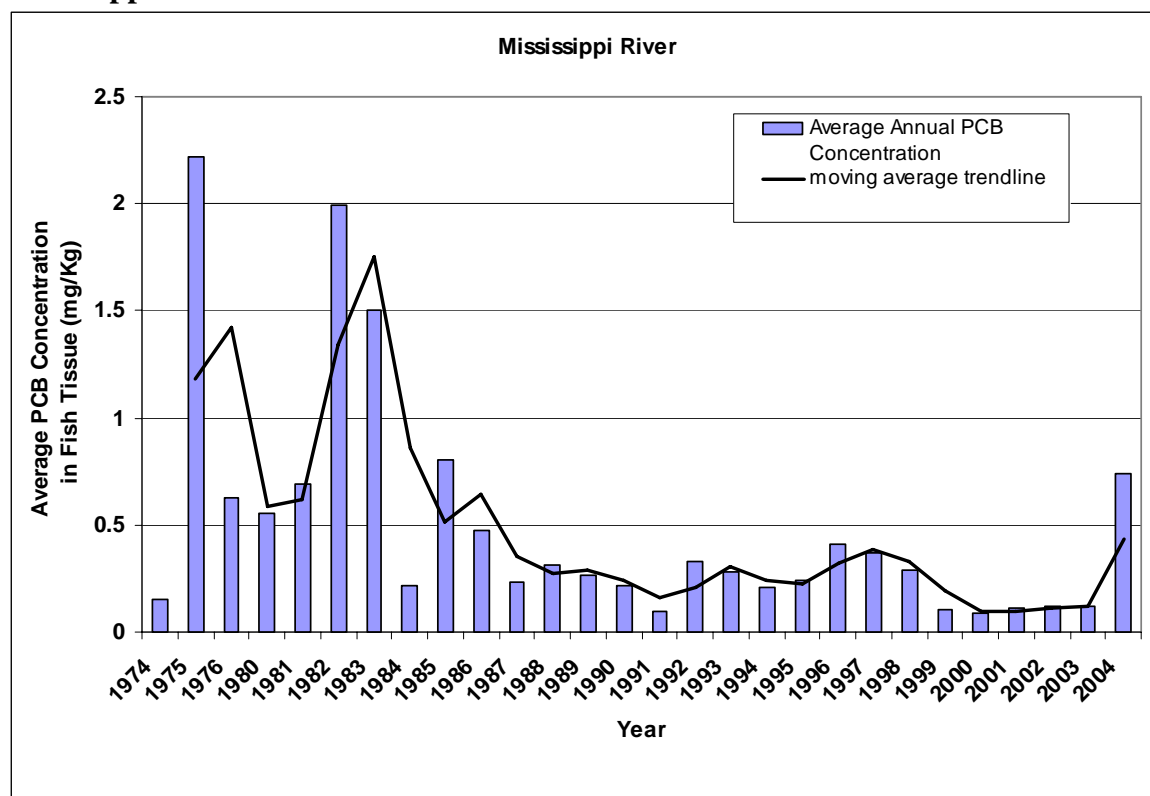


Figure 4: Average Annual PCB Concentration and Three-Year Moving Average in Mississippi River over Time



The department recognizes that data collected to date do not always reflect a downward trend of PCBs or chlordane on a year-to-year basis, however, that this is most likely due to collection inconsistencies. Some years of data contain tissue samples of many different fish species, but some years contain only one or two species of fish. Fatty fish, such as carp, tend to absorb more PCBs than a less fatty fish such as catfish. Likewise, feeding habits, rainfall and age and size of the fish can effect the amount of sediment (thus PCBs and chlordane) assimilated by fish or the bio-accumulative effect. The most recent data predominately sampled catfish and sturgeon, however in 2004, only sturgeon was sampled. This would tend to show increasing levels of PCBs and chlordane in later years and obscure the overall downward trend. When only fillets are considered, from the year 1999 to the present, concentrations of both compounds are consistently below the stated action levels.

As mentioned, these pollutants degrade slowly and are extremely persistent in the environment. However, since they are no longer produced, a downward trend is inevitable and this TMDL recommends development of a consistent protocol for measurement of the pollutants in fish tissue and continued sampling.

This is a phased TMDL, which means that if future data indicates fish tissue chlordane and PCB levels are not continuing to decline, this TMDL will be re-evaluated. This TMDL will be incorporated into Missouri's Water Quality Management Plan.

7. Public Participation

This TMDL was on public notice from June 9 to July 9, 2006. Due to comments received during the first notice period, which resulted in substantial changes to the TMDL document, a second public notice period was needed. This period was from Aug. 30 to Sept. 29, 2006. Groups who received the public notice announcement included the Missouri Clean Water Commission, the Water Quality Coordinating Committee, the water quality departments in neighboring states where the Mississippi River is a shared border (Illinois, Kentucky and Tennessee), 24 Stream Team volunteers in the watershed, and the 32 legislators representing all the counties bordering this river. Also, the department posted the notice, the Mississippi River Information Sheet and this document on its Web site, making them available to anyone with access to the Web. The department has placed a copy of the notice, the comments received and its responses in the Mississippi River file.

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Appendix

Table A: Sampling Locations along Mississippi River

Table B: Fish Tissue Data

Table A: Sampling Locations along Mississippi River

Number	Location	Station Name	River Mile	Latitude	Longitude	Data Source
1	Upper Mississippi River	Above Canton, Missouri	RM 343.2	40.1441	-91.511	IL EPA
2	Upper Mississippi River	Quincy, Illinois	RM 327	39.931	-91.4209	IL EPA USEPA MDC
3	Upper Mississippi River	0.5-miles below Quincy, Illinois	RM 326.5	39.8786	-91.4484	IL EPA
4	Upper Mississippi River	Hannibal, Missouri	RM 309	39.7231	-91.3636	EPA/MDNR MDC USEPA
5	Upper Mississippi River	Saverton, Missouri	RM 302	39.6459	-91.2631	MDC
6	Upper Mississippi River	Louisiana, Missouri	RM 282.8	39.4527	-91.043	MDC USEPA
7	Upper Mississippi River	Cannon NWR, Illinois	RM 260	39.2532	-90.7489	MDC
8	Upper Mississippi River	Winfield, Missouri	RM 241.5	39.005	-90.688	IL EPA USEPA MDC USPHS
9	Upper Mississippi River	Golden Eagle, Illinois	RM 228.4	38.8689	-90.5666	IL EPA
10	Upper Mississippi River	Alton, Illinois	RM 203.1	38.885	-90.1808014	EPA/MDNR MDC USEPA
11	Upper Mississippi River	Maple Island, Illinois (Near Alton)	RM 200.4	38.8652	-90.1474	IL EPA
12	Upper Mississippi River	St. Louis, Missouri	RM 180	38.629	-90.181	EPA/MDNR MDC
13	Upper Mississippi River	Kimmswick, Missouri	RM 159	38.3579	-90.3576	MDC IL EPA USEPA EPA/MDNR USPHS
14	Upper Mississippi River	2.5-miles below Herculaneum, Missouri	RM 149	38.2962	-90.3739	EPA/MDNR
15	Upper Mississippi River	Crystal City, Missouri	RM 148.7	38.2237	-90.3574	MDC EPA/MDNR
16	Upper Mississippi River	Chester, Illinois	RM 110	37.904	-89.838	EPA/MDNR IL EPA MDC USEPA

Number	Location	Station Name	River Mile	Latitude	Longitude	Data Source
						USFWS
17	Upper Mississippi River	Cape Girardeau, Missouri	RM 52	37.3295	-89.4937	EPA/MDNR USGS USEPA MDC
18	Lower Mississippi River	Cairo, Illinois	RM 955.8	36.9783	-89.1476	IL EPA MDC
19	Lower Mississippi River	Caruthersville, Missouri	RM 846	36.1995	-89.6513	MDC USEPA EPA/MDNR TN

Table B: Mississippi River Fish Tissue Data for Sum of the Isomers (SOI) Chlordane and PCBs from 1975 to 2004

Note: For use in calculations, the original data were adjusted as follows: Where the data were recorded as “less than” values, half that value is used. Where data were recorded as “Trace amount”, zero (0) is used. The SOI Chlor and PCB columns below reflect these adjustments. The units for both are milligrams per kilogram (mg/kg).

Org	Site	WBID	Site Name	Species	County	Date	Type	# in samples	SOI Chlor	PCB
ILLEPA			MISS R. FT.MADISON	CH CAT		1974	F	5		0
ILLEPA			MISS R. FT.MADISON	CARP		1974	F	2		0
ILLEPA			MISS R. FT.MADISON	SAUGER		1974	F	2		0
ILLEPA			MISS R. FT.MADISON	CRA		1974	F	4		0
ILLEPA			MISS R. FT.MADISON	CARP		1974	F	1		0.37
ILLEPA			MISS R. FT.MADISON	CH CAT		1974	F	1		0.73
ILLEPA			MISS R. FT.MADISON	B BUF		1974	F	1		0.1
ILLEPA			MISS R. FT.MADISON	W BASS		1974	F	4		0
ILLEPA			MISS R. FT.MADISON	CH CAT		1974	F	1		0.16
ILLEPA			MISS R. FT.MADISON	CARP		1974	F	1		0.3
ILLEPA		1	MISS R. QUINCY-KEO	CRA		1974	F	2		0
ILLEPA		1	MISS R. QUINCY-KEO	CARP		1974	F	2		0
ILLEPA		1	MISS R. QUINCY-KEO	CRA		1974	F	4		0
ILLEPA		1	MISS R. QUINCY-KEO	CH CAT		1974	F	1		0.67
ILLEPA		1	MISS R. QUINCY-KEO	CARP		1974	F	2		0
ILLEPA		1	MISS R. QUINCY-KEO	CARP		1974	F	2		0.26
ILLEPA		1	MISS R. QUINCY-KEO	CH CAT		1974	F	2		0.31
ILLEPA		1	MISS R. QUINCY-KEO	CH CAT		1974	F	2		0
ILLEPA		1	MISS R. QUINCY-KEO	PADDLE		1974	F	2		0
WISDNR			MISS R.	CARP		1975				3
WISDNR			MISS R.	CARP		1975	F			0.4
IACC			MISS R. COMANCHE	N PIKE		1975		1		0.1
WISDNR			MISS R. LAKE PEPIN	CARP		1975	F			2.9
WISDNR			MISS R. LAKE PEPIN	CARP		1975	F			0.9
WISDNR			MISS R. LAKE PEPIN	CARP		1975	F			12

WISDNR			MISS R. LAKE PEPIN	CARP		1975	F			4.2
WISDNR			MISS R. LAKE PEPIN	CARP		1975	F			0.9
WISDNR			MISS R. LAKE PEPIN	CARP		1975	F			1.6
WISDNR			MISS R. LAKE PEPIN	CARP		1975	F			1.4
WISDNR			MISS R. LAKE PEPIN	CARP		1975	F			3.1
WISDNR			MISS R. LAKE PEPIN	CARP		1975				3.6
IACC			MISS R. LANSING	N PIKE		1975	F	1		0.22
WISDNR			MISS R. LYNXVILLE	CARP		1975	F			1.1
WISDNR			MISS R. LYNXVILLE	CARP		1975	F			1.3
WISDNR			MISS R. LYNXVILLE	CARP		1975	F			1.4
WISDNR			MISS R. LYNXVILLE	CARP		1975	F			0.3
WISDNR			MISS R. LYNXVILLE	CARP		1975	F			1.8
WISDNR			MISS R. LYNXVILLE	CARP		1975	F			0.8
WISDNR			MISS R. LYNXVILLE	CARP		1975	F			1.3
WISDNR			MISS R. LYNXVILLE	CARP		1975	F			1.9
WISDNR			MISS R. LYNXVILLE	CARP		1975	F			0.2
WISDNR			MISS R. LYNXVILLE	CARP		1975	F			2.2
WISDNR			MISS R. LYNXVILLE	CARP		1975	F			3.5
WISDNR			MISS R. LYNXVILLE	CARP		1975	F			0.5
WISDNR			MISS R. LYNXVILLE	CARP		1975	F			1.5
WISDNR			MISS R. MAIDEN RK	CARP		1975				0.9
WISDNR			MISS R. MAIDEN RK	CARP		1975				9.6
WISDNR			MISS R. MAIDEN RK	CARP		1975				0.7
WISDNR			MISS R. MAIDEN RK	CARP		1975				0.6
WISDNR			MISS R. MAIDEN RK	CARP		1975				0.7
WISDNR			MISS R. MAIDEN RK	CARP		1975				8.0
WISDNR			MISS R. MAIDEN RK	CARP		1975				0.7
WISDNR			MISS R. MAIDEN RK	CARP		1975				2.3
WISDNR			MISS R. MAIDEN RK	CARP		1975				1.8
WISDNR			MISS R. MAIDEN RK	CARP		1975				2.0
WISDNR			MISS R. MAIDEN RK	CARP		1975				1.3
WISDNR			MISS R. PRESCOTT	WALL		1975	F			0.3
WISDNR			MISS R. PRESCOTT	WALL		1975	F			0.5
WISDNR			MISS R. PRESCOTT	WALL		1975	F			1.1
WISDNR			MISS R. PRESCOTT	WALL		1975	F			9.8
WISDNR			MISS R. PRESCOTT	WALL		1975	F			0.9
WISDNR			MISS R. PRESCOTT	WALL		1975	F			0.7
WISDNR			MISS R. PRESCOTT	WALL		1975	F			1.6
WISDNR			MISS R. PRESCOTT	WALL		1975	F			0.3
WISDNR			MISS R. PRESCOTT	WALL		1975	F			0.6
WISDNR			MISS R. PRESCOTT	WALL		1975	F			0.6
WISDNR			MISS R. PRESCOTT	WALL		1975	F			0.2
WISDNR			MISS R. PRESCOTT	WALL		1975	F			0.7
WISDNR			MISS R. PRESCOTT	CARP		1975				2.5
WISDNR			MISS R. PRESCOTT	WALL		1975	F			6.5
WISDNR			MISS R. PRESCOTT	WALL		1975	F			0.7
WISDNR			MISS R. WABASHA	CARP		1975	F			3.6
WISDNR			MISS R. WABASHA	CARP		1975	F			0.5
WISDNR			MISS R. WABASHA	CARP		1975	F			7.8

WISDNR			MISS R. WABASHA	CARP	1975	F		2.4
WISDNR			MISS R. WABASHA	CARP	1975	F		1.2
WISDNR			MISS R. WABASHA	CARP	1975	F		0.9
WISDNR			MISS R. WABASHA	CARP	1975	F		1.6
WISDNR			MISS R. WABASHA	CARP	1975	F		7.3
USEPA			MISS R. COMANCHE	STRIPE	1976		1	0.194
USEPA			MISS R. COMANCHE	DRUM	1976		1	0.306
USEPA			MISS R. COMANCHE	BH CAT	1976		1	0
USEPA			MISS R. COMANCHE	SM BUF	1976		4	0.593
USEPA			MISS R. COMANCHE	GAR	1976		4	0.653
USEPA			MISS R. COMANCHE	CARP	1976		4	0
USEPA			MISS R. COMANCHE	SHAD	1976		4	0.469
USEPA			MISS R. DAVENPORT	STRIPE	1976		1	0.509
USEPA			MISS R. DAVENPORT	CARP	1976		4	0.588
USEPA			MISS R. DAVENPORT	SM BUF	1976		3	0.382
USEPA			MISS R. DAVENPORT	BM BUF	1976			0.267
USEPA			MISS R. DAVENPORT	CARPSU	1976		1	0.61
USEPA			MISS R. DAVENPORT	WALL	1976		1	0.219
USEPA			MISS R. DAVENPORT	CRA	1976		4	0.071
USEPA			MISS R. DAVENPORT	SHAD	1976		4	0.822
USEPA			MISS R. DAVENPORT	CH CAT	1976			0.088
USEPA			MISS R. LANSING	WALL	1976		1	0.194
USEPA			MISS R. LANSING	W BASS	1976		1	0.513
USEPA			MISS R. LANSING	RED	1976		3	0.317
USEPA			MISS R. LANSING	ROCK	1976		2	0.4
USEPA			MISS R. LANSING	BH CAT	1976		1	0.155
USEPA			MISS R. LANSING	W CRA	1976		1	0.302
USEPA			MISS R. LANSING	ROCK	1976		1	0.06
USEPA			MISS R. LANSING	BGILL	1976		2	0.32
USEPA			MISS R. LANSING	G EYE	1976		1	0.46
USEPA			MISS R. LANSING	SHAD	1976		4	0.252
USEPA			MISS R. LANSING	DRUM	1976		2	0
USEPA			MISS R. LANSING	FH CAT	1976		1	0.188
USEPA			MISS R. LANSING	L BASS	1976		2	0.09
USEPA			MISS R. LANSING	SUCKER	1976		4	0.188
USEPA	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	L GAR	1976		6	1.026
USEPA	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	BASS	1976		2	0.27
USEPA	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	SHAD	1976			0
USEPA	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	SM BUF	1976		1	0.211
USEPA	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	CARP	1976		3	2.225
USEPA	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	CH CAT	1976		1	0.86
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	CAT	1976		10	1.3
USEPA	3152/15.5	3152	Mississippi R. @ Caruthersville	SUN	1976		1	0

USEPA	3152/15.5	3152	Mississippi R. @Caruthersville	SM BUF		1976		1		2.045
USEPA	3152/15.5	3152	Mississippi R. @Caruthersville	CARP		1976		1		0.102
USEPA	3152/15.5	3152	Mississippi R. @Caruthersville	A GAR		1976		3		3.39
USEPA	3152/15.5	3152	Mississippi R. @Caruthersville	PADDLE		1976		1		0.42
USEPA	3152/15.5	3152	Mississippi R. @Caruthersville	SHAD		1976		4		0.345
USEPA	3152/15.5	3152	Mississippi R. @Caruthersville	B CRA		1976		1		0.28
USEPA	1707/158.5	1707	Mississippi R. @ Kimmswick	W BASS	JEFFERSON	1976		1		0.6
USEPA	1707/158.5	1707	Mississippi R. @ Kimmswick	A GAR	JEFFERSON	1976				3.692
USEPA	1707/158.5	1707	Mississippi R. @ Kimmswick	M EYE	JEFFERSON	1976		2		0.729
USEPA	1707/158.5	1707	Mississippi R. @ Kimmswick	BUF	JEFFERSON	1976		4		0.627
USEPA	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1976		4		1.45
USEPA	1707/158.5	1707	Mississippi R. @ Kimmswick	L GAR	JEFFERSON	1976		3		2.95
USEPA	1707/158.5	1707	Mississippi R. @ Kimmswick	G SHAD	JEFFERSON	1976		4		0.093
USEPA	1707/158.5	1707	Mississippi R. @ Kimmswick	SM BUF	JEFFERSON	1976		2		1.196
MDC	1/113.8	1	Mississippi R. @ Hannibal	CAT	MARION	1976		10		0.96
MDC	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1976		5		0
MDC	1707/110	1707	Mississippi R. @Chester, Ill.	CAT	PERRY	1976		8		1.64
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1976		5		0
MDC	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1976		5		0
USGS			MISS R. DUBUQUE	B CRA		1980		1		0.37
USGS			MISS R. DUBUQUE	CARP		1980		1		0.85
USGS			MISS R. DUBUQUE	CARP		1980		1		0.309
USGS	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	CARP		1980	W	1		1.63
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	CARP		1980	W	5		0
USGS	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	W BASS		1980	W	1		1.04
USGS	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	CARP		1980	W	1		1.31
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1980	W	5		0
EPA/MDNR	1707/110	1707	Mississippi R. @Chester, Ill.	CARP	PERRY	1980	W	5		0
EPA/MDNR	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1980	W	5		0
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	CARP		1981	W	2		0.87
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1981	W	5		0

EPA/MDNR	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1981	W	4		1.9
EPA/MDNR	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1981	W	5		0
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	B BUF		1982	W	5		1.94
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1982	W	5		0.16
EPA/MDNR	1707/180.0	1707	Mississippi R. at St. Louis	B BUF	ST LOUIS	1982	W	5		3.89
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1983	W	3		7.9
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1983	W	5		0.43
ILLEPA	1707/1.0	1707	Mississippi R. @ Cairo	CARP	MISSISSIPPI	1983		5		0
ILLEPA	1707/1.0	1707	Mississippi R. @ Cairo	W BASS	MISSISSIPPI	1983		5		0
ILLEPA	1707/1.0	1707	Mississippi R. @ Cairo	B CRA	MISSISSIPPI	1983		1		0
EPA/MDNR	1707/180.0	1707	Mississippi R. at St. Louis	CARP	ST LOUIS	1983	W	5		0.69
ILLEPA		1	MISS R. WINFIELD	CARP		1984		5		0.05
ILLEPA		1	MISS R. WINFIELD	CARP		1984		5		0.05
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1984	W	5		0
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CH CAT	JEFFERSON	1984		1		0
EPA/MDNR	1707/158.5	1707	Mississippi R. @ Kimmswick	SM BUF	JEFFERSON	1984	W	6		2.4
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1984	W	5		0.48
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1984	F	1		0
ILLEPA	1/140.7	1	Mississippi R. @ Quincy, IL	CH CAT	MARION	1984		5		0.04
ILLEPA	1/140.7	1	Mississippi R. @ Quincy, IL	CH CAT	MARION	1984		5		0.38
ILLEPA	1/140.7	1	Mississippi R. @ Quincy, IL	CARP	MARION	1984		5		0.02
ILLEPA	1/140.7	1	Mississippi R. @ Quincy, IL	CARP	MARION	1984		5		0.16
ILLEPA	1707/110	1707	Mississippi R. @Chester, Ill.	CARP	PERRY	1984		5		0.05
ILLEPA	1707/110	1707	Mississippi R. @Chester, Ill.	B BUF	PERRY	1984		5		0.05
ILLEPA	1707/110	1707	Mississippi R. @Chester, Ill.	CH CAT	PERRY	1984		1		0.05
EPA/MDNR	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1984	W	5		1.001
EPA/MDNR	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1984	W	5		0.21
EPA/MDNR	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1984	W	5		0.32
MDC	1707/180.0	1707	Mississippi R. at St. Louis	CARP	ST LOUIS	1984	F	1		0
MDC	1707/180.0	1707	Mississippi R. at St. Louis	CARP	ST LOUIS	1984	F	1		0
MDC	1707/180.0	1707	Mississippi R. at St. Louis	CARP	ST LOUIS	1984	F	1		0
MDC	1707/180.0	1707	Mississippi R. at St. Louis	CARP	ST LOUIS	1984	F	1		0

MDC	1707/180.0	1707	Mississippi R. at St. Louis	CARP	ST LOUIS	1984	F	1		0
MDC	1707/180.0	1707	Mississippi R. at St. Louis	CARP	ST LOUIS	1984	F	5		0
MDC	1707/180.0	1707	Mississippi R. at St. Louis	FH CAT	ST LOUIS	1984	F	5		0
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1985	W	5		1.31
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1985	F	5		0
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1985	W	5		0.41
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1985	W	5		0.067
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1985	W	5		0
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1985	W	5		0
EPA/MDNR	1707/110	1707	Mississippi R. @ Chester, Ill.	CARP	PERRY	1985	W	5		0.52
EPA/MDNR	1707/110	1707	Mississippi R. @ Chester, Ill.	CARP	PERRY	1985	W	5		0.3
EPA/MDNR	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1985	W	5		0.073
EPA/MDNR	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1985	W	5		0.75
EPA/MDNR	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1985	W	6		0
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		0.218
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		0.412
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		0.78
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		3.9
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		0.276
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		1.1
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		0.509
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		0.408
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		3.3
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		1.85
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		0.721
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		1.05
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		0.839
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		0.693
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		1.25
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		0.768

MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		0.544
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		1.68
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		0.494
MDC	1707/180.0	1707	Mississippi R. at St. Louis	SHSTUR	ST LOUIS	1985		1		0.721
EPA/MDNR			MISS R. DAVENPORT	CH CAT		1986	W	5		0.32
EPA/MDNR			MISS R. GUTTENBURG	CH CAT		1986	W	5		0.039
USPHS		1	MISS R. WINFIELD	BUF		1986	W			0
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1986	W	5		1.405
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1986	W	5		0.775
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	CH CAT		1986	F	5		0
USPHS	1707/158.5	1707	Mississippi R. @ Kimmswick	PADDLE	JEFFERSON	1986	F	4		0
USPHS	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1986	F			0.25
USPHS	1707/158.5	1707	Mississippi R. @ Kimmswick	BL CAT	JEFFERSON	1986	F	1		0
USPHS	1707/158.5	1707	Mississippi R. @ Kimmswick	BUF	JEFFERSON	1986	F			0.28
MDC	1/113.8	1	Mississippi R. @ Hannibal	SHSTUR	MARION	1986	F			0.338
MDC	1/113.8	1	Mississippi R. @ Hannibal	FH CAT	MARION	1986	F			0.498
MDC	1/113.8	1	Mississippi R. @ Hannibal	CH CAT	MARION	1986	F			0.252
MDC	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1986	F			0.107
MDC	1/113.8	1	Mississippi R. @ Hannibal	DRUM	MARION	1986	F			0.172
MDC	1/113.8	1	Mississippi R. @ Hannibal	SHSTUR	MARION	1986	F			0.268
MDC	1/113.8	1	Mississippi R. @ Hannibal	CARPSU	MARION	1986	F			0.147
MDC	1/113.8	1	Mississippi R. @ Hannibal	SHSTUR	MARION	1986	E			0.367
MDC	1707/110	1707	Mississippi R. @ Chester, Ill.	CARP	PERRY	1986	F	5		0
EPA/MDNR	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1986	W	5		3.045
MDC	1/7.6	1	Mississippi R. @ Alton	CH CAT	ST CHARLES	1986	F			0.211
EPA/MDNR	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1986	W	5		2.855
MDC	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1986	F			0.134
MDC	1707/180.0	1707	Mississippi R. at St. Louis	CARP	ST LOUIS	1986	F	5		0
MDC		1	MISS R. WINFIELD	CH CAT		1987	F	5		0.242
MDC		1	MISS R. WINFIELD	CARP		1987	F	5		0.073
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	FH CAT		1987	E	1		0.3

MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	BL CAT		1987	F	1		0.342
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1987	W	5		0.695
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CRA		1987	F	5		0.045
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1987	F	5		0.248
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	FH CAT		1987	F	1		0.194
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	FH CAT		1987	F	1		0.133
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARPSU		1987	F	2		0.096
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1987	W	5		0.69
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	FH CAT		1987	F	2		0.2
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	FH CAT		1987	F	2		0.06
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	BUF		1987	F	1		0.056
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	DRUM		1987	F	5		0.08
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	FH CAT		1987	F	1		0.192
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	CARP		1987	F	5		0.127
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	DRUM		1987	F	1		0.102
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	CH CAT		1987	F	5		0.137
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	W BASS		1987	F	2		0.322
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	BL CAT		1987	F	1		0.148
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	FH CAT		1987	F	2		0.136
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	FH CAT	JEFFERSON	1987	F	1		0.17
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	FH CAT	JEFFERSON	1987	F	1		0.447
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	FH CAT	JEFFERSON	1987	F	1		0.118
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CH CAT	JEFFERSON	1987	F	2		0.238
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1987	F	5		0.273
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	L BASS	JEFFERSON	1987	F	1		0.133
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	W BASS	JEFFERSON	1987	F	1		0.215
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CH CAT	JEFFERSON	1987	F	1		0.205
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1987	W	5		0.21
MDC	1/113.8	1	Mississippi R. @ Hannibal	L STUR	MARION	1987	F	1		0.885
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1987	W	5		0.226

MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CH CAT	MARION	1987	F	5		0.059
MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CH CAT	MARION	1987	F	3		0.077
MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CH CAT	MARION	1987	F	5		0.122
MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CARP	MARION	1987	F	5		0.055
MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CH CAT	MARION	1987	F	3		0.079
MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CARP	MARION	1987	F	5		0.057
MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CH CAT	MARION	1987	F	1		0.025
MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CARP	MARION	1987	F	5		0.116
MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CARP	MARION	1987	F	2		0.025
MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CARP	MARION	1987	F	4		0.092
MDC	1707/1.0	1707	Mississippi R. @ Cairo	W BASS	MISSISSIPPI	1987	F	5		0.193
MDC	1707/1.0	1707	Mississippi R. @ Cairo	CH CAT	MISSISSIPPI	1987	W	5		0.305
MDC	1707/1.0	1707	Mississippi R. @ Cairo	CH CAT	MISSISSIPPI	1987	F	5		0.3
MDC	1707/1.0	1707	Mississippi R. @ Cairo	BUF	MISSISSIPPI	1987	F	5		0.308
MDC	1707/1.0	1707	Mississippi R. @ Cairo	SM BUF	MISSISSIPPI	1987	F	5		0.383
MDC	1707/1.0	1707	Mississippi R. @ Cairo	SM BUF	MISSISSIPPI	1987	F	5		0.692
MDC	1707/1.0	1707	Mississippi R. @ Cairo	SAUGER	MISSISSIPPI	1987	W	5		0.76
MDC	1707/1.0	1707	Mississippi R. @ Cairo	SAUGER	MISSISSIPPI	1987	F	5		0.161
MDC	1707/1.0	1707	Mississippi R. @ Cairo	W BASS	MISSISSIPPI	1987	W	5		0.785
MDC	1707/1.0	1707	Mississippi R. @ Cairo	CH CAT	MISSISSIPPI	1987	W	5		0.692
MDC	1707/1.0	1707	Mississippi R. @ Cairo	SAUGER	MISSISSIPPI	1987	F	5		0.192
MDC	1707/1.0	1707	Mississippi R. @ Cairo	SAUGER	MISSISSIPPI	1987	F	5		0.963
MDC	1707/1.0	1707	Mississippi R. @ Cairo	SM BUF	MISSISSIPPI	1987	F	5		0.434
MDC	1707/1.0	1707	Mississippi R. @ Cairo	CH CAT	MISSISSIPPI	1987	W	5		0.65
MDC	1707/1.0	1707	Mississippi R. @ Cairo	CH CAT	MISSISSIPPI	1987	F	5		0.467
MDC	1707/1.0	1707	Mississippi R. @ Cairo	CH CAT	MISSISSIPPI	1987	F	5		0.496
MDC	1707/110	1707	Mississippi R. @ Chester, Ill.	BUF	PERRY	1987	W	4		0.206
MDC	1707/110	1707	Mississippi R. @ Chester, Ill.	CARP	PERRY	1987	W	4		0.502
MDC	1707/110	1707	Mississippi R. @ Chester, Ill.	CH CAT	PERRY	1987	W	3		0.768
MDC	1707/110	1707	Mississippi R. @ Chester, Ill.	CARP	PERRY	1987	W	4		0.385
MDC	1/87.7	1	Mississippi R. @ Louisiana	SAUGER	PIKE	1987	F	4		0.052
MDC	1/87.7	1	Mississippi R. @ Louisiana	CH CAT	PIKE	1987	F	5		0.164
MDC	1/87.7	1	Mississippi R. @ Louisiana	FH CAT	PIKE	1987	F	1		0.025
MDC	1/87.7	1	Mississippi R. @ Louisiana	PADDLE	PIKE	1987	F	1		0.025
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARPSU	PIKE	1987	F	3		0.025
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARPSU	PIKE	1987	F	1		0.025

MDC	1/87.7	1	Mississippi R. @ Louisiana	SHSTUR	PIKE	1987	E			0.676
MDC	1/87.7	1	Mississippi R. @ Louisiana	W BASS	PIKE	1987	F	5		0.066
MDC	1/87.7	1	Mississippi R. @ Louisiana	CH CAT	PIKE	1987	F	5		0.178
MDC	1/87.7	1	Mississippi R. @ Louisiana	L BASS	PIKE	1987	F	5		0.025
MDC	1/87.7	1	Mississippi R. @ Louisiana	BGILL	PIKE	1987	F	5		0.025
MDC	1/87.7	1	Mississippi R. @ Louisiana	BUF	PIKE	1987	F	6		0.025
MDC	1/87.7	1	Mississippi R. @ Louisiana	DRUM	PIKE	1987	F	5		0.079
MDC	1/87.7	1	Mississippi R. @ Louisiana	SHSTUR	PIKE	1987	F	5		0.054
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1987	F	5		0.116
MDC	1/87.7	1	Mississippi R. @ Louisiana	CRA	PIKE	1987	F	5		0.025
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1987	F	5		0.025
MDC	1/87.7	1	Mississippi R. @ Louisiana	FH CAT	PIKE	1987	F	2		0.025
MDC	1/87.7	1	Mississippi R. @ Louisiana	CH CAT	PIKE	1987	F	5		0.238
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1987	F	5		0.083
MDC	1/87.7	1	Mississippi R. @ Louisiana	BUF	PIKE	1987	F	1		0.025
MDC	1/7.6	1	Mississippi R. @ Alton	CH CAT	ST CHARLES	1987	F	5		0.025
MDC	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1987	F	5		0.025
USEPA		1	MISS R. WINFIELD	CARP		1988	F	5		0.134
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1988	W	5		0.82
USEPA	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1988	W	5		0.62
USEPA	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1988	W	5		0.73
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1988	W	4		0.12
USEPA	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1988	W	5		0.075
USEPA	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1988	W	4		0.183
USEPA	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1988	W	5		0.165
USEPA	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1988	W	5		0.109
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1988	W	4		0.27
USEPA	1/140.7	1	Mississippi R. @ Quincy, IL	CARP	MARION	1988	W	5		0.215
USEPA	1707/110	1707	Mississippi R. @ Chester, Ill.	CARP	PERRY	1988	W	5		0.45
USEPA	1/87.7	1	Mississippi R. @ Louisiana	L BASS	PIKE	1988	F	5		0.009

USEPA	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1988	W	5		0.216
USEPA	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1988	W	5		0.68
USEPA	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1988	W	5		0.206
MDC		1	MISS R. QUINCY-KEO	CARP		1989	F	5		0.096
MDC		1	MISS R. QUINCY-KEO	CH CAT		1989	F	5		0.216
MDC		1	MISS R. WINFIELD	CARP		1989	F	5		0.061
MDC		1	MISS R. WINFIELD	CH CAT		1989	F	5		0.101
MDC		1	MISS R. WINFIELD	PADDLE		1989	F	5		0.025
MDC		1	MISS R. WINFIELD	CH CAT		1989	F	5		0.116
MDC		1	MISS R. WINFIELD	CARP		1989	F	5		0.09
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1989	W	5		0.94
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CAT		1989	F	5		0.174
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1989	F	5		0.398
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1989	F	5		0.273
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	FH CAT		1989	F	1		0.124
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CAT		1989	F	3		0.114
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1989	W	5		1.25
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	BL CAT		1989	F	1		0.263
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1989	F	1		0.238
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1989	F	4		1.43
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	CH CAT		1989	F	5		0.284
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1989	F	4		0.088
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1989	W	3		0.141
MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CARP	MARION	1989	F	5		0.133
MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CH CAT	MARION	1989	F	5		0.085
MDC	1707/1.0	1707	Mississippi R. @ Cairo	CH CAT	MISSISSIPPI	1989	F	5		0.11
MDC	1707/1.0	1707	Mississippi R. @ Cairo	CARP	MISSISSIPPI	1989	F	2		0.094
MDC	1707/1.0	1707	Mississippi R. @ Cairo	CARP	MISSISSIPPI	1989	F	1		0.08
MDC	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1989	F	5		0.088
MDC	1/7.6	1	Mississippi R. @ Alton	CH CAT	ST CHARLES	1989	F	5		0.133
MDC		1	MISS R. QUINCY-KEO	CH CAT		1990	F	5		0.251
MDC		1	MISS R. QUINCY-KEO	CARP		1990	F	5		0.088
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CH CAT		1990	F	5		0.098
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1990	F	3		0.087

MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1990	F	3		0.478
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1990	W	3		0.79
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1990	W	3		1.19
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1990	F	5		0.247
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CH CAT		1990	F	5		0.135
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP		1990	F	5		0.154
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	SHSTUR		1990	F	2		0.185
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	SHSTUR		1990	F	4		0.372
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	PADDLE		1990	F	5		0.025
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CH CAT		1990	F	5		0.294
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1990	F	5		0.295
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	FH CAT	JEFFERSON	1990	F	5		0.057
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	W BASS	JEFFERSON	1990	F	5		0.09
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1990	W	5		0.367
MDC	1/113.8	1	Mississippi R. @ Hannibal	CH CAT	MARION	1990	F	5		0.105
MDC	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1990	F	5		0.097
MDC	1707/1.0	1707	Mississippi R. @ Cairo	CARP	MISSISSIPPI	1990	F	5		0.356
MDC	1707/1.0	1707	Mississippi R. @ Cairo	FH CAT	MISSISSIPPI	1990	F	5		0.07
MDC	1707/1.0	1707	Mississippi R. @ Cairo	CH CAT	MISSISSIPPI	1990	F	5		0.193
MDC	1/64.0	1	Mississippi R. @ Cannon NWR	CARP	PIKE	1990	F	5		0.07
MDC	1/64.0	1	Mississippi R. @ Cannon NWR	CH CAT	PIKE	1990	F	5		0.126
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1990	F	5		0.068
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1990	F	5		0.074
MDC	1/87.7	1	Mississippi R. @ Louisiana	CH CAT	PIKE	1990	F	5		0.125
MDC	1/87.7	1	Mississippi R. @ Louisiana	CH CAT	PIKE	1990	F	5		0.138
MDC	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1990	F	5		0.058
MDC	1/7.6	1	Mississippi R. @ Alton	PADDLE	ST CHARLES	1990	F	5		0.053
MDC	1/7.6	1	Mississippi R. @ Alton	CH CAT	ST CHARLES	1990	F	5		0.194
MDC		1	MISS R. QUINCY-KEO	CARP		1991	F			
MDC		1	MISS R. QUINCY-KEO	CH CAT		1991	F			
MDC		1	MISS R. WINFIELD	CH CAT		1991	F			
MDC		1	MISS R. WINFIELD	CARP		1991	F			

MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1991	F			
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1991	F			
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CH CAT		1991	F			
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CH CAT		1991	F			
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	CH CAT		1991	F			
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	CARP		1991	F			
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	CARPSU		1991	F			
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	CH CAT		1991	F			
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1991	F			0.09
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	W BASS	JEFFERSON	1991	F			0.025
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CH CAT	JEFFERSON	1991	F			0.179
MDC	1/113.8	1	Mississippi R. @ Hannibal	CH CAT	MARION	1991	F			
MDC	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1991	F			
MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CH CAT	MARION	1991	F			
MDC	1/140.7	1	Mississippi R. @ Quincy, IL	CARP	MARION	1991	F			
MDC	1/87.7	1	Mississippi R. @ Louisiana	CH CAT	PIKE	1991	F			
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1991	F			
MDC	1/7.6	1	Mississippi R. @ Alton	CH CAT	ST CHARLES	1991	F			
MDC	1/7.6	1	Mississippi R. @ Alton	CARP	ST CHARLES	1991	F			
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1992	F			
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	CARP		1992	F			
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	CARP		1992	F			
MDC	3152/15.5	3152	Mississippi R. @ Caruthersville	CARP		1992	F			
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1992	F			
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1992	F			0.326
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1992	F			
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1992	F			
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1992	F			
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1992	X			
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1993	W	3		0.81

EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1993	W	3		0.57
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP		1993	F	17		0.362
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP		1993	F	8		0.05
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP		1993	F	17		0.121
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1993	F	18		0.373
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1993	F	18		0.11
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1993	F	9		0.123
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1993	F	5		0.1
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1993	F	5		0.183
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1994	F	3		0.69
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1994	F	3		0.53
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP		1994	F	15		0.025
EPA/MDNR	3152/15.5	3152	Mississippi R. @Caruthersville	CARP		1994	W	5		0.159
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP		1994	W	15		0.025
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP		1994	W	15		0.025
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1994	F	15		0.076
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1994	F	15		0.197
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1994	F	10		0.23
EPA/MDNR	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1994	W	4		0.3
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1994	W	3		0.137
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1994	W	45		0.097
TN			MISS R. AB MEMPHIS	L BASS		1995	F	3		0.2
TN			MISS R. AB MEMPHIS	CARP		1995	F	3		0.02
TN			MISS R. AB MEMPHIS	CARP		1995	F	1		0.17
TN			MISS R. AB MEMPHIS	BL CAT		1995	F	3		0.27
TN			MISS R. BL MEMPHIS	BL CAT		1995	F	1		1.43
TN			MISS R. BL MEMPHIS	BL CAT		1995	F	3		0.31
TN			MISS R. BL MEMPHIS	CARP		1995	F	1		0.21
TN			MISS R. BL MEMPHIS	CARP		1995	F	3		0.01
TN			MISS R. BL MEMPHIS	CARP		1995	F	1		0.18
TN		3152	MISS R. BLYTHVILLE	BL CAT		1995	F	3		0.08
TN		3152	MISS R. BLYTHVILLE	BL CAT		1995	F	3		0.56
TN		3152	MISS R. BLYTHVILLE	CARP		1995	F	1		0.08
TN		3152	MISS R. BLYTHVILLE	CARP		1995	F	1		0.01
TN		3152	MISS R. BLYTHVILLE	BL CAT		1995	F	1		0.15
TN		3152	MISS R. BLYTHVILLE	SM BUF		1995	F	1		0.1

TN		3152	MISS R. BLYTHVILLE	SM BUF		1995	F	3		0.14
TN		3152	MISS R. BLYTHVILLE	BASS		1995	F			0.17
TN		3152	MISS R. BLYTHVILLE	SM BUF		1995	F	3		0.08
TN	3152/15.5	3152	Mississippi R. @Caruthersville	BASS		1995	F			0.01
TN	3152/15.5	3152	Mississippi R. @Caruthersville	CARP		1995	F	3		0.01
TN	3152/15.5	3152	Mississippi R. @Caruthersville	CH CAT		1995	F	3		0.17
MDC	1707/149	1707	Mississippi R. @Crystal City	CARP	JEFFERSON	1995	F	45	0.034	0.109
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	BL CAT	NEW MADRID	1995	F	1	0.379	1.45
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP	PEMISCOTT	1995	F	48	0.001	0.025
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1995	W	45	0.035	0.077
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP		1996	W	8		0.159
EPA/MDNR	3152/15.5	3152	Mississippi R. @Caruthersville	CARP		1996	W	3		0.079
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP	CAPE GIRARDEAU	1996	F	9	0.054	0.148
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP	CAPE GIRARDEAU	1996	F	9	0.062	0.157
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP	CAPE GIRARDEAU	1996	F	9	0.059	0.363
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP	CAPE GIRARDEAU	1996	F	9	0.049	0.133
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	SM BUF	CAPE GIRARDEAU	1996	F	25	0.01	0.025
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP	CAPE GIRARDEAU	1996	F	9	0.061	0.149
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CH CAT	CAPE GIRARDEAU	1996	F	25	0.051	0.107
EPA/MDNR	1707/158. 5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1996	W	5		0.171
MDC	1707/149	1707	Mississippi R. @Crystal City	SHSTUR	JEFFERSON	1996	F	25	0.072	0.313
MDC	1707/149	1707	Mississippi R. @Crystal City	CARP	JEFFERSON	1996	F	30	0.062	0.11
MDC	1707/149	1707	Mississippi R. @Crystal City	CARP	JEFFERSON	1996	F	15	0.062	0.15
MDC	1707/149	1707	Mississippi R. @Crystal City	SM BUF	JEFFERSON	1996	F	25	0.059	0.05
MDC		1	MISS R. QUINCY-KEO	SHSTUR	LEWIS	1996	F	5	0.046	0.161
MDC		1	MISS R. QUINCY-KEO	CARP	LEWIS	1996	F	15	0.04	0.025
MDC		1	MISS R. QUINCY-KEO	CH CAT	LEWIS	1996	F	10	0.123	0.351
MDC		1	MISS R. QUINCY-KEO	CARP	LEWIS	1996	F	15	0.039	0.025
MDC		1	MISS R. QUINCY-KEO	BUF	LEWIS	1996	F	25	0.02	0.07
MDC		1	MISS R. QUINCY-KEO	CARP	LEWIS	1996	F	15	0.025	0.025
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1996	W	5		0.203
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	BM BUF	PEMISCOT	1996	F	10	0.018	0.074
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	SHSTUR	PEMISCOT	1996	E		0.119	0.757

MDC	3152/15.5	3152	Mississippi R. @Caruthersville	SHSTUR	PEMISCOT	1996	F	15	0.109	0.457
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CH CAT	PEMISCOT	1996	F	26	0.005	0.025
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP	PEMISCOT	1996	F	13	0.035	0.169
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP	PEMISCOT	1996	F	6	0.042	0.165
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP	PEMISCOT	1996	F	5	0.028	0.074
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP	PEMISCOT	1996	F	6	0.06	0.273
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP	PEMISCOT	1996	F	15	0.031	0.109
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	SM BUF	PEMISCOT	1996	F	5	0.012	0.066
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	B BUF	PEMISCOT	1996	F	10	0.041	0.147
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	SHSTUR	PEMISCOT	1996	F	10	0.113	0.548
MDC	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1996	E	10	0.124	0.432
MDC	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1996	E		0.997	4.52
MDC	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1996	E	13	0.116	0.531
MDC	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1996	E		0.81	5.81
MDC	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1996	E		0.495	1.39
MDC	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1996	E	4	0.128	0.495
MDC	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1996	E		0.387	0.017
MDC	1/87.7	1	Mississippi R. @ Louisiana	CH CAT	PIKE	1996	F	15	0.112	0.148
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1996	F	15	0.044	0.07
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1996	F	15	0.026	0.091
MDC	1/87.7	1	Mississippi R. @ Louisiana	SHSTUR	PIKE	1996	F	13	0.029	0.083
MDC	1/87.7	1	Mississippi R. @ Louisiana	SHSTUR	PIKE	1996	F	12	0.054	0.142
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1996	F	15	0.025	0.025
MDC	1/87.7	1	Mississippi R. @ Louisiana	BUF	PIKE	1996	F	10	0.022	0.025
MDC	1/87.7	1	Mississippi R. @ Louisiana	BUF	PIKE	1996	F	15	0.008	0.025
FWS-Coffey			MISS R. DAVENPORT	SHSTUR		1997	W	1	0.025	0.22
FWS-Coffey			MISS R. DAVENPORT	SHSTUR		1997	W	1	0.026	0.2
FWS-Coffey			MISS R. DAVENPORT	SHSTUR		1997	W	1	0.03	0.21
FWS-Coffey			MISS R. DAVENPORT	SHSTUR		1997	W	1	0.025	0.094
FWS-Coffey			MISS R. DAVENPORT	SHSTUR		1997	W	1	0.025	0.23

FWS-Coffey			MISS R. DAVENPORT	SHSTUR		1997	W	1	0.028	0.49
FWS-Coffey			MISS R. DAVENPORT	SHSTUR		1997	W	1	0.06	0.28
FWS-Coffey			MISS R. DAVENPORT	SHSTUR		1997	W	1	0.025	0.14
FWS-Coffey			MISS R. DAVENPORT	SHSTUR		1997	W	1	0.025	0.16
FWS-Coffey			MISS R. DAVENPORT	SHSTUR		1997	W	1	0.031	0.31
ILLEPA	1/ILL	1	Mississippi R. @ Frentress Lake	CH CAT		1997	F	3		0.43
ILLEPA	1/ILL	1	Mississippi R. @ Frentress Lake	CARP		1997	F	5		0.28
ILLEPA	1/ILL	1	Mississippi R. @ Frentress Lake	CH CAT		1997	F	5		0.25
ILLEPA	1/ILL	1	Mississippi R. @ Frentress Lake	CARP		1997	F	5		0.3
ILLEPA	1/ILL	1	Mississippi R. @ L. Bogus Island	W CRA		1997	F	3		0.05
ILLEPA	1/ILL	1	Mississippi R. @ L. Bogus Island	CH CAT		1997	F	5		0.23
ILLEPA	1/ILL	1	Mississippi R. @ L. Bogus Island	CARP		1997	F	5		0.14
ILLEPA	1/ILL	1	Mississippi R. @ L. Bogus Island	CH CAT		1997	F	5		0.25
ILLEPA	1/ILL	1	Mississippi R. @ L. Bogus Island	CARP		1997	F	5		0.19
ILLEPA	1/ILL	1	Mississippi R. @ L. Bogus Island	L BASS		1997	F	3		0.05
ILLEPA	1/ILL	1	Mississippi R. @ Marais D'Osier Slough	CARP		1997	F	5		0.3
ILLEPA	1/ILL	1	Mississippi R. @ Marais D'Osier Slough	CARP		1997	F	5		0.2
ILLEPA	1/ILL	1	Mississippi R. @ Marais D'Osier Slough	L BASS		1997	F	3		0.05
ILLEPA	1/ILL	1	Mississippi R. @ Sylvan Slough	CARP		1997	F	5		0.26
ILLEPA	1/ILL	1	Mississippi R. @ Sylvan Slough	CARP		1997	F	5		0.45
MDC	1707/158. 5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1997	F	22	0.073	0.251
MDC	1707/149	1707	Mississippi R. @Crystal City	CARP	JEFFERSON	1997	F	25	0.043	0.207
ILLEPA	1/127.2	1	Mississippi R. 5 mi. bl. Quincy, IL	CARP	MARION	1997	F	5		0.16
ILLEPA	1/127.2	1	Mississippi R. 5 mi. bl. Quincy, IL	CARP	MARION	1997	F	5		0.17
ILLEPA	1/127.2	1	Mississippi R. 5 mi. bl. Quincy, IL	CH CAT	MARION	1997	F	3		0.69
USFWS	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1997	W	1	0.193	0.9
USFWS	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1997	W	1	0.155	0.5
USFWS	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1997	W	1	0.152	0.61
USFWS	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1997	W	1	0.121	0.75
MDC	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1997	E		0.271	1.03

USFWS	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1997	W	1	0.112	1.2
USFWS	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1997	W	1	0.098	0.31
USFWS	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1997	W	1	0.301	1
USFWS	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1997	W	1	0.156	0.45
USFWS	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1997	W	1	0.441	1.5
MDC	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1997	W	15	0.118	0.483
USFWS	1707/110	1707	Mississippi R. @Chester, Ill.	SHSTUR	PERRY	1997	W	1	0.19	0.86
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1997	F	25	0.021	0.056
MDC	1/87.7	1	Mississippi R. @ Louisiana	SHSTUR	PIKE	1997	F	15	0.015	0.051
MDC	1/87.7	1	Mississippi R. @ Louisiana	CH CAT	PIKE	1997	F	15	0.075	0.39
ILLEPA	1/4.9	1	Mississippi R. @ Maple Island	CARP	ST CHARLES	1997	F	4		0.24
ILLEPA	1/4.9	1	Mississippi R. @ Maple Island	CH CAT	ST CHARLES	1997	F	5		0.42
ILLEPA	1/4.9	1	Mississippi R. @ Maple Island	L BASS	ST CHARLES	1997	F	5		0.05
ILLEPA	1/4.9	1	Mississippi R. @ Maple Island	SHSTUR	ST CHARLES	1997	F	5		0.24
ILLEPA	1/4.9	1	Mississippi R. @ Maple Island	SHSTUR	ST CHARLES	1997	F	5		0.19
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	CARP	CAPE GIRARDEAU	1998	W	5		0.345
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	FH CAT	CAPE GIRARDEAU	1998	W	15	0.023	0.025
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	CARP	CAPE GIRARDEAU	1998	W	25	0.047	0.025
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau, MO.	CARP	CAPE GIRARDEAU	1998	W	5		0.335
MDC	1707/149	1707	Mississippi R. @Crystal City	CH CAT	JEFFERSON	1998	W	15	0.015	0.102
MDC	1707/149	1707	Mississippi R. @Crystal City	CARP	JEFFERSON	1998	W	25	0.048	0.103
EPA/MDNR	1707/149	1707	Mississippi R. @Crystal City	CARP	JEFFERSON	1998	W	5		0.823
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	1998	W	5		0.255
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	CARP	PEMISCOT	1998	W	25	0.05	0.318
EPA/MDNR	3152/15.5	3152	Mississippi R. @Caruthersville	MIXED	PEMISCOT	1998	W	7		0.415
ILLEPA	1/32.4	1	Mississippi R. @ Golden Eagle, IL	STUR	ST CHARLES	1998	F	5		0.29
ILLEPA	1/32.4	1	Mississippi R. @ Golden Eagle, IL	STUR	ST CHARLES	1998	F	5		0.29
ILLEPA	1/32.4	1	Mississippi R. @ Golden Eagle, IL	STUR	ST CHARLES	1998	F	3		0.52
ILLEPA	1/32.4	1	Mississippi R. @ Golden Eagle, IL	STUR	ST CHARLES	1998	F	5		0.17
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	1999	F	25	0.084	0.14

MDC	1707/149	1707	Mississippi R. @Crystal City	STUR	JEFFERSON	1999	F		0.125	0.198
MDC	1707/149	1707	Mississippi R. @Crystal City	STUR	JEFFERSON	1999	F	15	0.035	0.14
MDC	1/87.7	1	Mississippi R. @ Louisiana	CARP	PIKE	1999	F	25	0.025	0.025
ILLEPA	1/32.4	1	Mississippi R. @ Golden Eagle, IL	PADDLE	ST CHARLES	1999	F	5		0.05
ILLEPA	1/32.4	1	Mississippi R. @ Golden Eagle, IL	PADDLE	ST CHARLES	1999	F	4		0.05
MDC	1707/149	1707	Mississippi R. @Crystal City	FH CAT	JEFFERSON	2000	F	17	0.017	0.089
MDC	1707/158.5	1707	Mississippi R. @ Kimmswick	CARP	JEFFERSON	2001	F	25	0.04	0.1
MDC	1707/149	1707	Mississippi R. @Crystal City	CARP	JEFFERSON	2001	F	25	0.044	0.119
ILLEPA	1/ILL	1	Mississippi R. @ RM 403	CARP		2002	F	1		0.27
ILLEPA	1/ILL	1	Mississippi R. @ RM 403	CARP		2002	F	4		0.22
ILLEPA	1/ILL	1	Mississippi R. @ RM 403	BGILL		2002	F	5		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 403	CH CAT		2002	F	2		0.14
ILLEPA	1/ILL	1	Mississippi R. @ RM 403	L BASS		2002	F	4		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 403	CARP		2002	F	5		0.22
ILLEPA	1/ILL	1	Mississippi R. @ RM 437	CARP		2002	F	5		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 437	BGILL		2002	F	4		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 437	CARP		2002	F	5		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 437	L BASS		2002	F	4		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 437	W BASS		2002	F	3		0.11
ILLEPA	1/ILL	1	Mississippi R. @ RM 480	CARP		2002	F	4		0.13
ILLEPA	1/ILL	1	Mississippi R. @ RM 480	CARP		2002	F	4		0.11
ILLEPA	1/ILL	1	Mississippi R. @ RM 480	L BASS		2002	F	5		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 480	CH CAT		2002	F	4		0.16
ILLEPA	1/ILL	1	Mississippi R. @ RM 480	CH CAT		2002	F	4		0.15
ILLEPA	1/ILL	1	Mississippi R. @ RM 480	BGILL		2002	F	3		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 525	L BASS		2002	F	5		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 525	BGILL		2002	F	5		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 525	CARP		2002	F	4		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 525	W BASS		2002	F	1		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 525	CARP		2002	F	3		0.05
EPA/MDNR	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	CARP	CAPE GIRARDEAU	2002	W	5		0.34
EPA/MDNR	1707/149	1707	Mississippi R. @Crystal City	CARP	JEFFERSON	2002	F	5	0.029	0.47
EPA/MDNR	1707/149	1707	Mississippi R. @Crystal City	W BASS	JEFFERSON	2002	F	5	0.008	0.056
EPA/MDNR	1707/153.5	1707	Mississippi R. 2.5 mi.ab. Herculaneum	CARP	JEFFERSON	2002	F	5	0.044	0.201
EPA/MDNR	1707/153.5	1707	Mississippi R. 2.5 mi.ab. Herculaneum	W BASS	JEFFERSON	2002	F	5	0.004	0.051
ILLEPA	1/145.6	1	Mississippi R. ab. Canton	CARP	LEWIS	2002	F	5		0.11
ILLEPA	1/145.6	1	Mississippi R. ab. Canton	CARP	LEWIS	2002	F	5		0.05
EPA/MDNR	1/113.8	1	Mississippi R. @ Hannibal	CARP	MARION	2002	W	5		0.125
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	FH CAT	PEMISCOT	2002	F	15	0.0079	0.07

MDC	3152/15.5	3152	Mississippi R. @Caruthersville	BL CAT	PEMISCOT	2002	F	15	0.013	0.061
EPA/MDNR	3152/15.5	3152	Mississippi R. @Caruthersville	CARP	PEMISCOT	2002	W	5		0.31
ILLEPA	1/ILL	1	Mississippi R. @ RM 403	CARP		2003	F	3		0.11
ILLEPA	1/ILL	1	Mississippi R. @ RM 437	W BASS		2003	F	5		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 437	CH CAT		2003	F	5		0.12
ILLEPA	1/ILL	1	Mississippi R. @ RM 437	CARP		2003	F	3		0.19
ILLEPA	1/ILL	1	Mississippi R. @ RM 480	CARP		2003	F	4		0.11
ILLEPA	1/ILL	1	Mississippi R. @ RM 480	CARP		2003	F	4		0.12
ILLEPA	1/ILL	1	Mississippi R. @ RM 480	CH CAT		2003	F	3		0.11
ILLEPA	1/ILL	1	Mississippi R. @ RM 480	L BASS		2003	F	3		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 525	CARP		2003	F	3		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 525	CARP		2003	F	3		0.05
ILLEPA	1/ILL	1	Mississippi R. @ RM 525	L BASS		2003	F	3		0.05
EPA/MDNR	1707/149	1707	Mississippi R. @Crystal City	CARP	JEFFERSON	2003	F	5	0.039	0.278
EPA/MDNR	1707/149	1707	Mississippi R. @Crystal City	SAUGER	JEFFERSON	2003	F	3	0.0084	0.1
EPA/MDNR	1707/153.5	1707	Mississippi R. 2.5 mi.ab. Herculaneum	CARP	JEFFERSON	2003	F	5	0.037	0.278
EPA/MDNR	1707/153.5	1707	Mississippi R. 2.5 mi.ab. Herculaneum	CH CAT	JEFFERSON	2003	F	3	0.02	0.132
ILLEPA	1/145.6	1	Mississippi R. ab. Canton	CARP	LEWIS	2003	F	3		0.18
ILLEPA	1/145.6	1	Mississippi R. ab. Canton	CH CAT	LEWIS	2003	F	4		0.13
ILLEPA	1/145.6	1	Mississippi R. ab. Canton	CARP	LEWIS	2003	F	4		0.13
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	SHSTUR	CAPE GIRARDEAU	2004	E	1	0.294	3.42
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	SHSTUR	CAPE GIRARDEAU	2004	F	5	0.0486	0.771
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	SHSTUR	CAPE GIRARDEAU	2004	F	5	0.0482	0.513
MDC	1707/53.0	1707	Mississippi R. @ Cape Girardeau,MO.	SHSTUR	CAPE GIRARDEAU	2004	F	5	0.0453	0.485
EPA/MDNR	1707/149	1707	Mississippi R. @Crystal City	W BASS	JEFFERSON	2004	F	5	0.0454	0.29
MDC	1707/149	1707	Mississippi R. @Crystal City	SHSTUR	JEFFERSON	2004	F	5	0.0384	0.472
MDC	1707/149	1707	Mississippi R. @Crystal City	SHSTUR	JEFFERSON	2004	F	5	0.0508	0.79
EPA/MDNR	1707/149	1707	Mississippi R. @Crystal City	C CARP	JEFFERSON	2004	F	5	0.0752	0.66
MDC	1707/149	1707	Mississippi R. @Crystal City	SHSTUR	JEFFERSON	2004	F	5	0.0368	0.397
EPA/MDNR	1707/153.5	1707	Mississippi R. 2.5 mi.ab. Herculaneum	W BASS	JEFFERSON	2004	F	5	0.0158	0.16
EPA/MDNR	1707/153.5	1707	Mississippi R. 2.5 mi.ab. Herculaneum	C CARP	JEFFERSON	2004	F	5	0.0343	0.31
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	SHSTUR	PEMISCOT	2004	F	5	0.0382	0.366
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	SHSTUR	PEMISCOT	2004	E	1	0.269	2.47
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	SHSTUR	PEMISCOT	2004	F	5	0.033	0.305
MDC	3152/15.5	3152	Mississippi R. @Caruthersville	SHSTUR	PEMISCOT	2004	F	5	0.0733	0.666

MDC	3152/15.5	3152	Mississippi R. @Caruthersville	SHSTUR	PEMISCOT	2004	E	1	0.224	1.85
MDC	1/106.2	1	Mississippi R. @ Saverton	SHSTUR	RALLS	2004	E	1	0.0981	1.02
MDC	1/106.2	1	Mississippi R. @ Saverton	SHSTUR	RALLS	2004	F	5	0.0173	0.179
MDC	1/106.2	1	Mississippi R. @ Saverton	SHSTUR	RALLS	2004	E	1	0.0306	0.398
MDC	1/106.2	1	Mississippi R. @ Saverton	SHSTUR	RALLS	2004	F	5	0.0218	0.221
MDC	1/106.2	1	Mississippi R. @ Saverton	SHSTUR	RALLS	2004	F	5	0.014	0.189
MDC	1/106.2	1	Mississippi R. @ Saverton	SHSTUR	RALLS	2004	E	1	0.0616	
MDC	1/106.2	1	Mississippi R. @ Saverton	SHSTUR	RALLS	2004	E	1	0.0314	0.343

Note: Site = WBID/number of miles from mouth; u = urban; r = rural; # in sample = the number of fish in each "sample".

Type = what form of the fish is evaluated:

W = the whole fish

F = the fillet of the fish only

E = the fish eggs only